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ABSTRACT

The Office of Academic Support and Instructional Services (OASIS) at the University of California, San Diego administers an Instructional Materials Development Program. An overview of the program is presented along with a description of the product development/evaluation cycle. Program evaluation is generic to this process, since several formative evaluation steps are intrinsic to the product development cycle. The OASIS Orientation Program is used to illustrate the application of the product development cycle to a particular project, and evaluation data that was gathered in the process is presented. Summaries of progress are presented for the projects producing self-instructional modules for note-taking instruction. A description of the development of the OASIS media playback center is also provided. (Author/JMF)

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ED129179

OASIS Evaluation Report #8

Instructional Materials Development Program: Winter and Spring Quarters, 1976

July 1976

Larry V. Hedges Kenneth Majer

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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The OASIS Instructional Materials Development (IMD) Program is designed to provide assistance to UCSD faculty and staff in the development of instructional materials of various types. The Coordinator for Instructional Materials Development works with content experts to aid in the planning of and the production of instructional materials. He also carries out evaluation based improvements of the initial instructional products with assistance from the OASIS Director and Coordinator for Research and Evaluation. This document was prepared as a report to the Chancellor's Advisory Committee on Instructional Improvement Projects and as a method for providing feedback for continual monitoring and program improvement.

Formative and summative evaluation of instructional materials are an integral part of product development. Because evaluation is an intrinsic part of the product development cycle, the evaluation of the program is a natural concomitant of this process. Since the IMD activities are by nature a project oriented program, the evaluation is herein presented on a project-by-project basis, according to the mechanisms dictated by the product development cycle.

Product Development Cycle

Figure 1 presents a graphic representation of the product development cycle used for the development of instructional materials (Southwest Regional Laboratory for Educational Research and Development, 1975). The cycle proceeds by a sequence of 12 steps, each step involving the materials developer, content

experts, or both.

The first step involves the specification of instructional goals by the content expert. Typically the content expert has determined the existence of unmet needs which he or she hopes the proposed instructional materials will satisfy.

When the content expert has specified the goals of the project, the instructional materials developer works with the content expert to specify detailed instructional objectives corresponding to those goals and to the project concept. At this stage, the materials developer also selects the media to be used and develops the outlines of the instructional strategies for the project. The objectives formulated are then circulated to other content experts who were not involved in the initial formulation of objectives for review. This review is designed to assure that the instructional objectives selected are complete and are consistent with other aspects of the curriculum.

Suggestions from the other content experts are incorporated and appropriate changes are made. As soon as the instructional objectives are finalized, the materials developer begins work on a preliminary version of the materials. This preliminary version of the materials is not in final format. It is rather, for example, in the form of scripts and illustrations with notations about the relationship of script and the complimentary illustration. These preliminary materials are reviewed by the content expert for the project, content colleagues, development experts, and selected members from the population for whom the materials

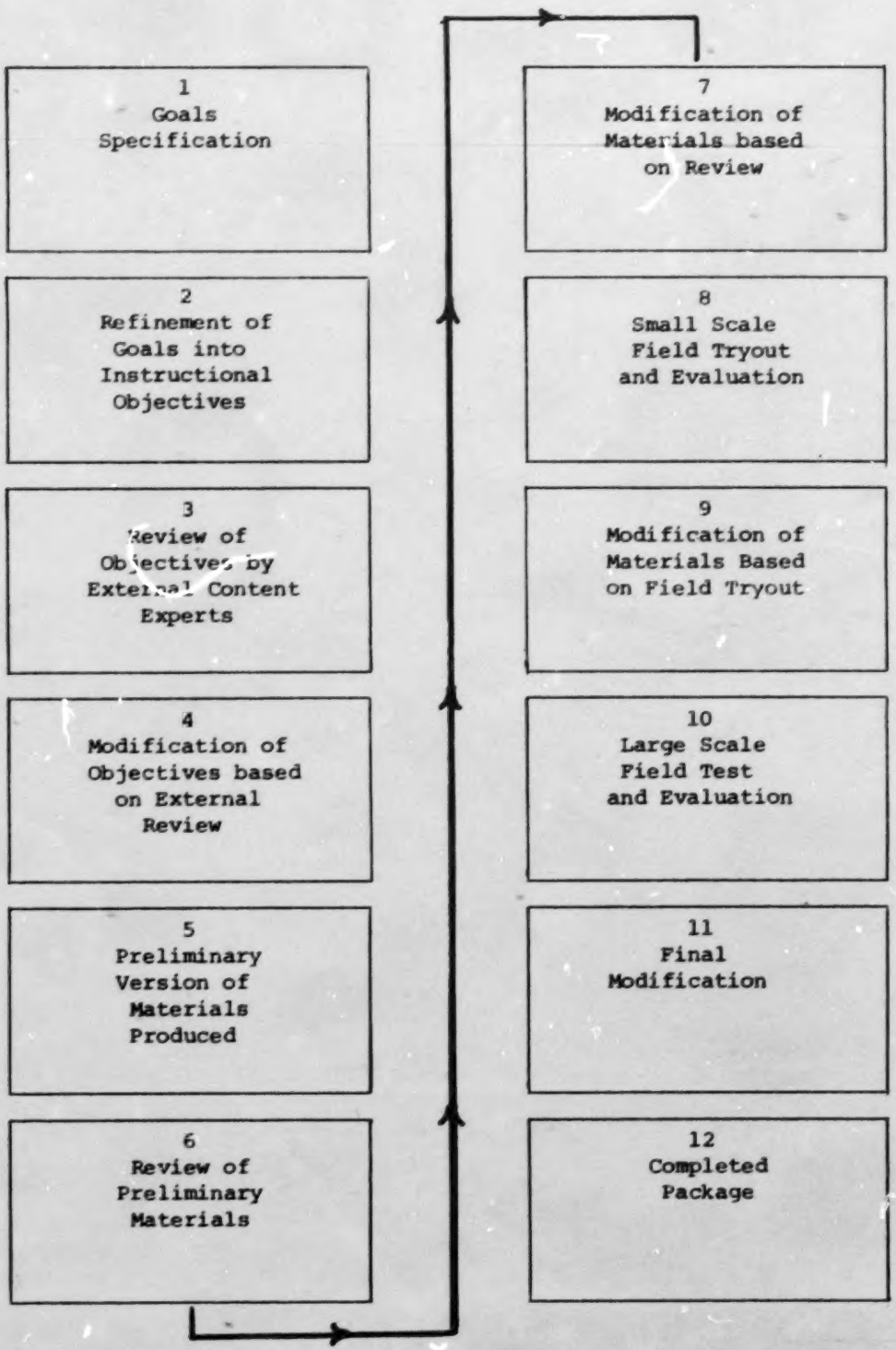
are intended. The comments and suggestions from this review are used to revise the materials as necessary.

The next step is the small scale field tryout, wherein the instructional materials are examined and worked with by a small representative group of the population that will ultimately use the materials. These evaluators are tested to determine their ability to reach the objectives specified. They also evaluate the materials on an affective level and make suggestions for improvements. The results of the small scale field tryout are used to determine what further modifications (if any) are necessary before the implementation of the materials on a large scale.

The large scale field test is usually the first implementation of the materials in the setting for which they were designed. The performance and satisfaction of students is carefully monitored during this first application of the materials and evaluation data is gathered to indicate any further revision of the materials was may be warranted. After final modifications of the materials, the instructional product can be considered complete and ready for further use or dissemination.

Figure 1

The Product Development Cycle



Application of the Product Development Cycle

One example of the materials development projects that has been completed is the OASIS Orientation Program. The Orientation Program will be the example used to illustrate the application of the product development cycle to a particular project. In this case, the content experts were members of the OASIS staff, primarily the four OASIS program coordinators. The OASIS Director and the program coordinators specified four general goals for the program:

1. To inform students (and staff) of the types of services available through OASIS.
2. To describe these services and how they relate to the regular academic departments at UCSD.
3. To inform students (and staff) about the procedures by which they can take advantage of OASIS services.
4. To illustrate the role of OASIS at UCSD as a research and service oriented program with resources available to faculty, staff, and students, including new and innovative programs to serve the general academic community.

After the general goals were specified, the Coordinator for Instructional Materials Development met with each program coordinator individually to clarify specific goals and objectives for the portions of the program that dealt with each coordinator's area. The specific goals and objectives that were developed relative to each OASIS programmatic area are presented

in Appendices I-V. After objectives relating to each programmatic area were developed in cooperation with the appropriate program coordinator, all the objectives were circulated to all the program coordinators and to the Director. Thus, the objectives developed in cooperation with each content expert (program coordinator) were examined and critiqued by four other OASIS professional staff members with some knowledge of the content. The objectives were subsequently modified to reflect additions and changes found necessary in this first review process.

While the review process was taking place, the Coordinator for Instructional Materials Development began work on a task analysis for the activities of OASIS programs. A separate task analysis was developed for each program (see Appendices VI-X). The products were reviewed and corrected by the program coordinators. This task analysis of activities was used in the development of the scripts and visuals for the Orientation Program.

Following completion of the task analysis and finalization of the objectives, a preliminary version of the materials with a script for the audio and notes on possible visuals to coordinate with the audio was produced. This preliminary script was reviewed by the content experts and modifications were made based on the feedback received.

Production of the program was then begun, based on the modified script. The necessary photographs and illustrations

were formatted, the audio script recorded, and the visuals were coordinated with the audio. The result was a preliminary version of the program which was viewed by selected students and OASIS staff.

The preliminary version of the program was then ready for field testing. A short test was developed to sample attainment of the program objectives and to obtain formative feedback on the program (see Appendix XI).

The program was field tested on a group of 20 University of California Extension students who were unfamiliar with the OASIS program. The students were told that they were to view the program for their information. At the end of the program the test (OASIS Orientation Questionnaire) was administered. The results of this evaluation were quite favorable but also suggested changes which further improved the program (see Appendices XII and XIII).

The resultant program was then given a large scale field test by administration to entering students as a part of their orientation to UCSD. The program was viewed by approximately 190 students during different orientation sessions in cooperation with six college orientation leaders. A questionnaire was then developed to obtain evaluative feedback from orientation leaders who had used the program (see Appendix XIV). This questionnaire was distributed to all the orientation leaders who used the program. The results of this final evaluation (see Appendix XV) indicate that the program was well received both

by orientation leaders and (in the leaders' opinion) by students.

Subsequent to this large scale field test and evaluation, slight modifications of some portions of the program were made to improve congruence of the visual motifs and audio.

Other Projects

The OASIS IMD Program is currently engaged in several other projects related to instructional media. These projects include the development of programs to teach note-taking, tutor training modules for the OASIS tutorial programs training class (TEP 196), and training for tutors to work with the visually limited. A major project will be the development of self-instructional modules to supplement the Science and Technology 11A course. Appendix XVI provides a tabular representation of progress to date on each of these projects. Finally, the IMD Program has developed a media playback room in the OASIS offices for the use of media materials by students. A more detailed description of each of these programs follows.

Note-Taking Program

The note-taking program will consist of a series of slide and videotape programs to explicate a method for taking lecture notes. The program is designed for skill acquisition of note-taking concepts by emphasizing both a model developed at Cornell University (Pauk, 1974) and active student participation. The program will include both teaching media segments to explicate techniques and practice tapes to provide practice in taking notes from videotaped mini-lectures of actual faculty members.

The practice tapes will contain the mini-lecture and a set of model notes from that lecture as well as other relevant exercises.

Teacher Education Program 196 Course Modules

Teacher Education 196 (TEP 196) is the course used to train OASIS tutors. The course has been modularized by content sections which will be refined into a self-instructional format. The course includes two basic types of modules: guest lectures and teaching skills instruction. The guest lecturers were videotaped presenting information on a variety of topics which will be edited for inclusion in self-instructional sequences built around the topical area of the presentation. The teaching skills instruction will also be reorganized and fitted into a comprehensive media presentation of the material. In addition, the Coordinator for Instructional Materials Development conducted video microteaching exercises with new tutors and all Teachers of Ten (TOT) program tutors.

Visually Limited Project

The visually limited project is a program consisting of exercises and media materials to provide tutors with a basis for understanding and assisting the visually limited. The program will provide sensitization to and awareness of the physical capabilities of the visually limited. It will also provide teaching strategy training to individuals interested in assisting visually limited students in their academic careers. Components of the program will include slide-tape programs on tutoring strategies for the visually limited; simulation exercises; and videotape

discussions among visually limited students of their needs, problems, and approaches to the college situation.

Science and Technology 11A Modules

The project is designed to improve the teaching of lower-division biology through an initial focus on the vertebrate zoology course. Upon completion and successful field tryout, both the format of the project and some of the learning materials may be transferrable to other lower division courses. The overall purpose of the project is to develop resources: 1) for improving basic learning skills within the context of lower division biology and, 2) for presenting key biological concepts that students have difficulty mastering through the standard lecture-textbook approach. The project has two specific aspects:

1. Preparation of learning materials to teach students to improve their learning and test-taking skills. These will be in the form of mediated materials with a heavy emphasis on student participation and exercises. Students will acquire learning skills (time management, organization, note-taking, test-taking skills, and general study strategies) by application of these principles to course materials.

2. Initiation of a program to develop six self-instructional modules which satisfactorily present key concepts in vertebrate zoology. These modules will be an integral component of instruction which will require approximately 45 minutes of student learning activity per week.

The titles of the nine modules planned for the course are:

1. Lecture Note-Taking
2. Textbook Reading and Note-Taking
3. Examination Skills
4. Energy and Thermodynamics
5. Cellular Respiration
6. Hemoglobin-Oxygen Binding and Unbinding
7. Diffusion, Active Transport, and Osmosis
8. Counter-Current Exchange and Counter-Current Multiplication
9. Negative Feedback Regulation

Media Playback Room

This aspect of the IMD Program consists of the development of a facility for the use of media materials by students. Careful investigation has enabled OASIS to acquire a more flexible system than was originally planned. The media playback room is now fully functional with five study carrel stations. Three of the stations are equipped with slide-tape units and two of the stations are equipped with color video cassette playback units. All stations are equipped with headphones to allow five or more students to use the facility simultaneously. In addition, there is a mobile video cassette recorder and monitor for use in video microteaching or group viewing of videotape.

References

Pauk. W. How to Study in College. Boston: Houghton Mifflin Company, 1974.

Southwest Regional Laboratory for Educational Research and Development. Development of Instructional Products. New York: Van Nostrand and Reinhold, 1975.

Appendix I

Objectives: PTFP Tutoring Program

After viewing the OASIS Orientation Program, the student will:

1. Respond positively to a question on the evidence from evaluation of the PTFP.
2. Choose three correct aspects of tutor training from a list of five.
3. List the group of eligible students.
4. List the course areas that are tutored.
5. Choose three correct characteristics of the service from a list of seven.
6. List the time for applying, the location for applying, and the time for assignment of tutors.
7. Choose two correct purposes of the program from a list of five.

Appendix II

Objectives: Clinic Program

After viewing the Orientation Program, the student will:

1. Respond positively to a true-false question on the evidence from evaluations of the clinics.
2. Choose three correct characteristics of the clinics from a list of seven possibilities.
3. Choose two correct purposes of the program from a list of five.
4. Choose three correct aspects of the tutor training from a list of five.
5. List the media that advertise the clinics.
6. Describe the procedure for receiving help.
7. List the student groups eligible for assistance.

Appendix III

Objectives: Reading and Study Skills Program

After viewing the OASIS Orientation Program, the student will:

1. Choose three correct purposes of the Reading and Study Skills Program from a list of six.
2. Correctly list the two modes of presentation of instruction.
3. Choose two correct areas covered by the Reading and Study Skills Program from a list of five.
4. Identify the population eligible for the Reading and Study Skills Program.
5. Identify the referral service for Reading and Study Skills Programs.
6. List the four steps in applying for reading and study skills assistance at OASIS.
7. Identify the location of Reading and Study Skills Programs.

Appendix IV

Objectives: Research and Evaluation Component

After viewing the OASIS Orientation Program, the student will:

1. List the two areas of OASIS investigation.
2. Choose three correct aspects of the Research and Evaluation component from a list of five.

Appendix V

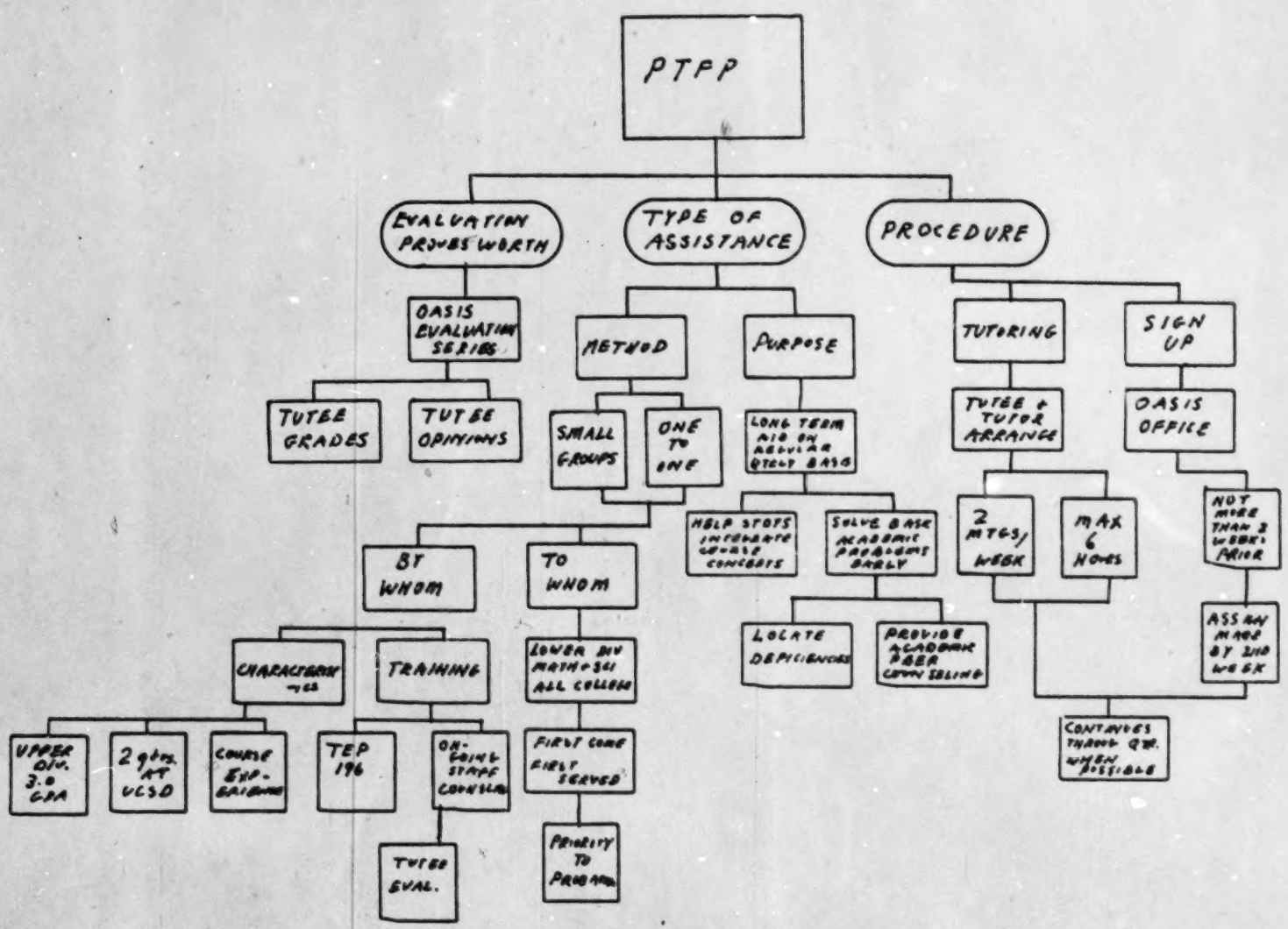
Objectives: Visually Limited Program

After viewing the OASIS Orientation Program, the student will:

1. List three types of materials available for students to receive training from.
2. Describe the procedure for obtaining these materials.
3. Choose two correct purposes of the OASIS programs from a list of five possibilities.

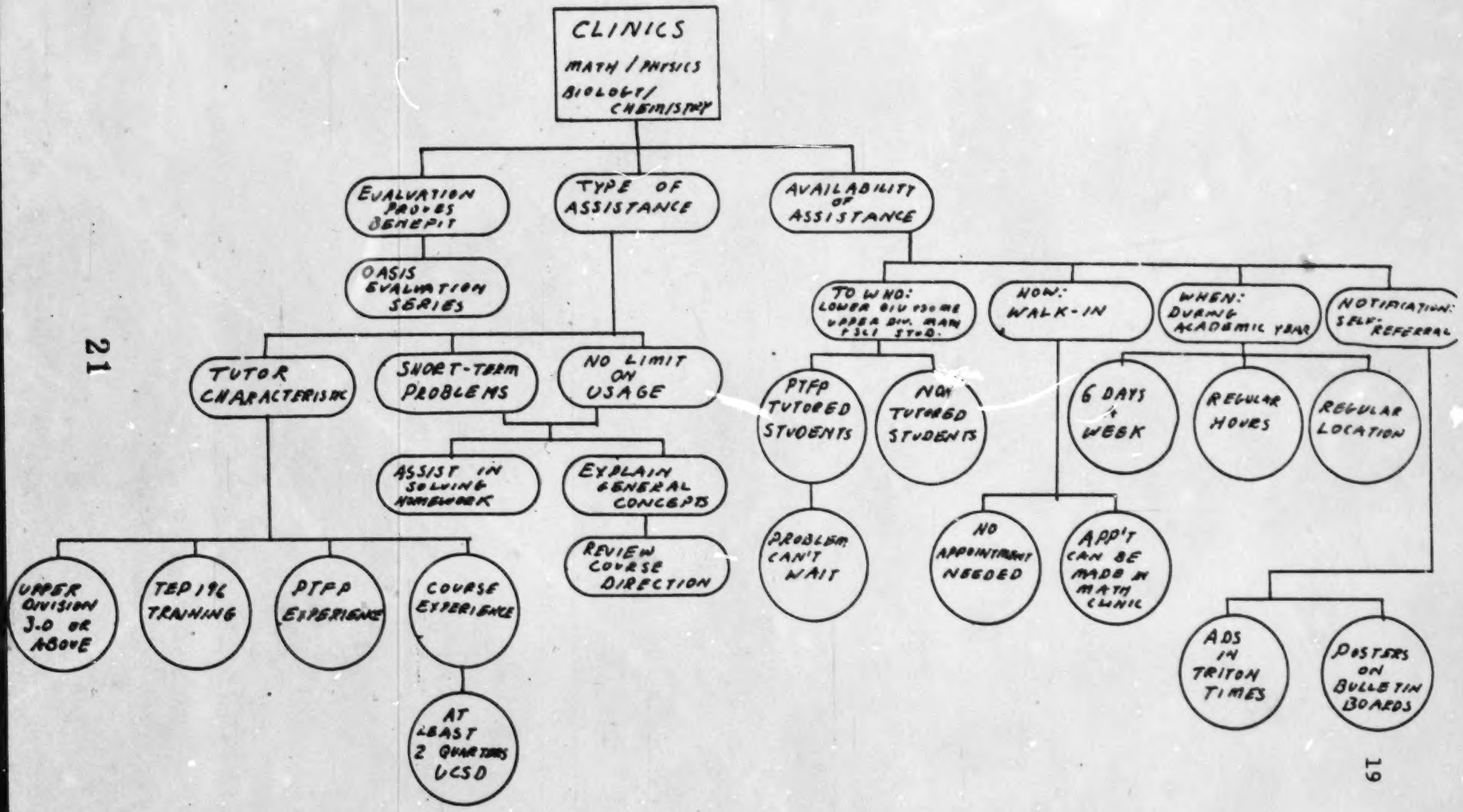
Appendix VI

Provosts' Tutorial Fellowship Program Task Analysis



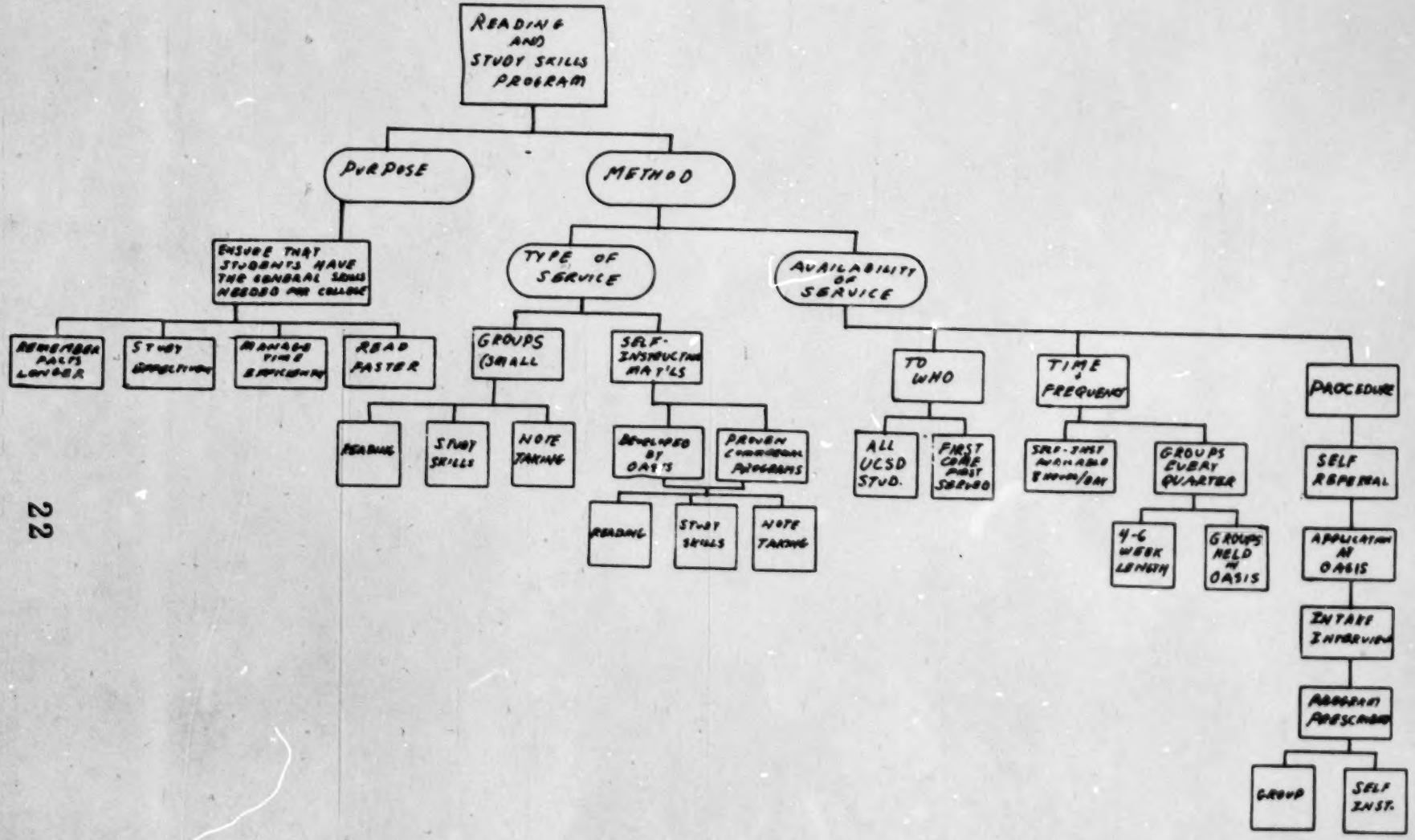
Appendix VII

Clinic Program Task Analysis



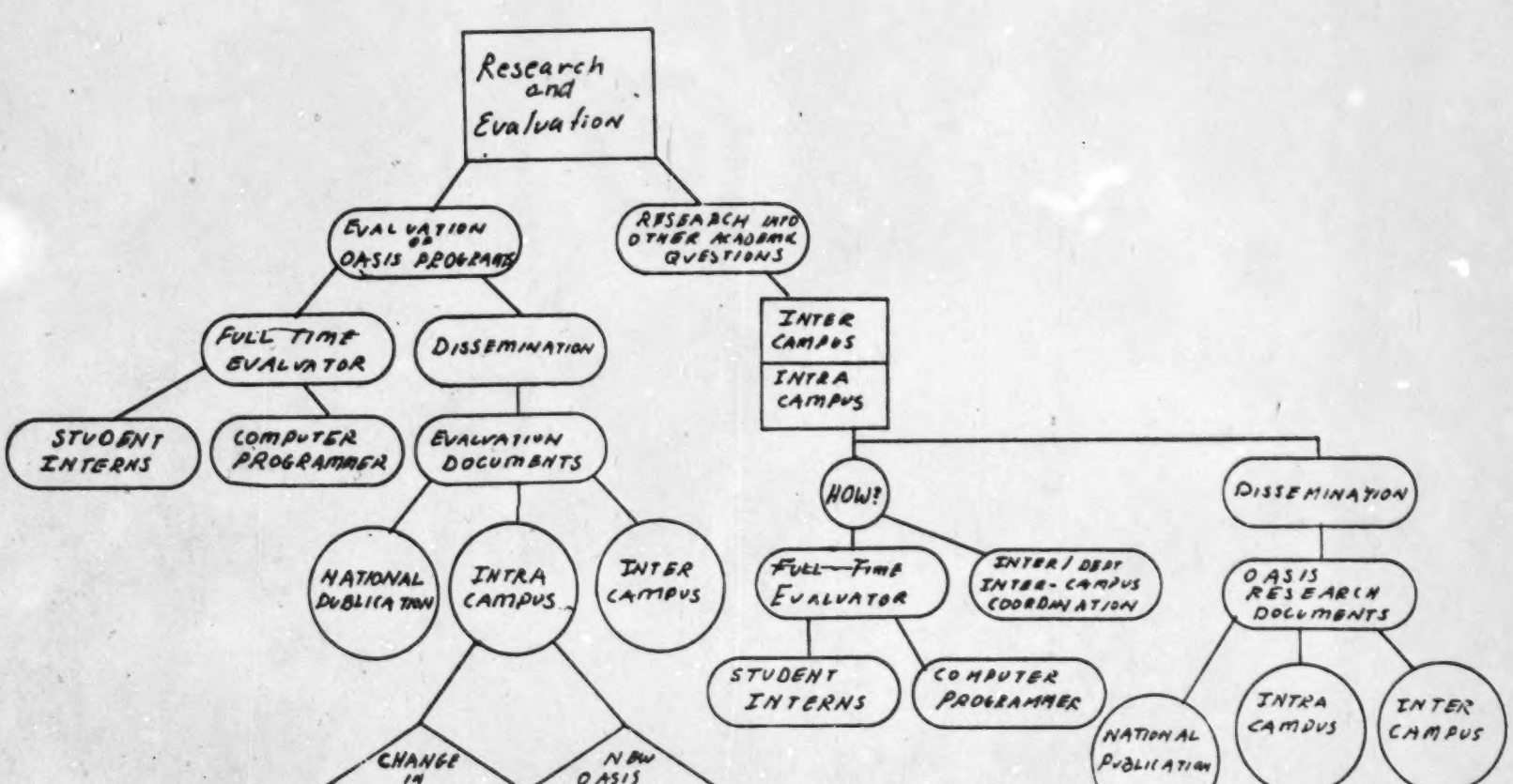
Appendix VIII

Reading and Study Skills Task Analysis



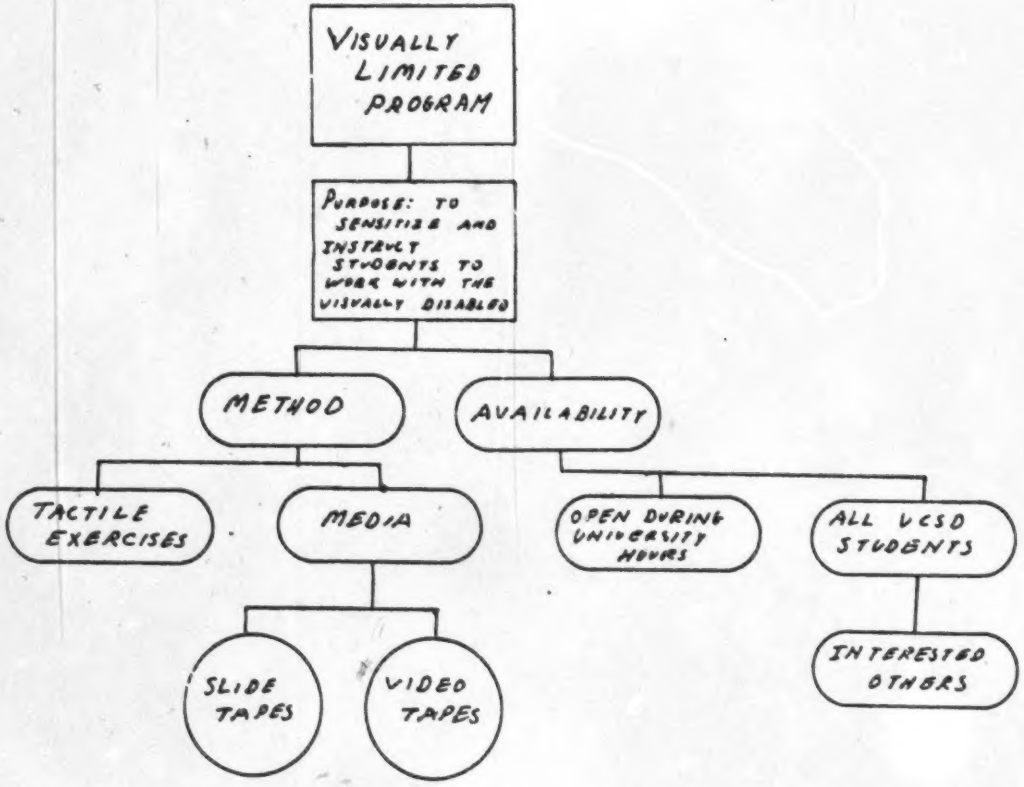
Appendix IX

Research and Evaluation
Program Task Analysis



Appendix X

Visually Limited
Program Task Analysis



Appendix XI

OASIS Orientation Questionnaire *

CIRCLE THE CORRECT RESPONSE TO EACH QUESTION

1. What do OASIS evaluation studies show?

   a) That female freshmen perform better than males in Math 48

   b) That tutorial assistance yields higher grades

   c) That mathematics is a useful course, in all disciplines

   d) That socioeconomic background has no relation to the number of students needing tutors

2. What is the purpose of the regular tutor assistance program?

   a) To provide free social and psychological assistance to students

   b) Solve short-term, emergency type problems

   c) To provide help on a no appointment, walk-in basis

   d) Help students integrate course concepts

3. Which of the following <u>is</u> true about the OASIS program for the visually limited?

   a) The program trains the visually limited in how to attend college.

   b) OASIS provides readers for the blind.

   c) The program trains tutors to work with the visually limited.

   d) OASIS provides canes and mobility instruction for the blind.

4. Which of the following services is <u>not</u> provided in the math/physics and biology/chemistry clinics?

   a) Assistance with short-term problems

   b) Aid on a walk-in basis

   c) Assistance in lower division math and science courses

   d) Tutors to do your homework problems for you

* Developed by the Office of Academic Support and Instructional Service March, 1976.

OASIS Orientation Questionnaire
Page Two

5. Which statement is not true of the Reading and Study Skills program?

   a) Provides individual counseling on a one-to-one basis

   b) Is available to all students on a first-come, first-served basis

   c) Meets in small group sessions

   d) Has self-instructional materials to work with

6. Information about where and when the math/physics and biology/chemistry clinics are held is not:

   a) advertised in the Triton Times

   b) available through OASIS

   c) posted on bulletin boards

   d) given out by instructors the first week of class

7. What should a student do to apply for regular tutorial assistance?

   a) Come in to the OASIS office

   b) Fill out a form with his/her registration materials

   c) Drop in at the advertised location and time

   d) Apply through the appropriate academic department in which they are having difficulty

8. What skill does the Reading and Study Skills program not cover?

   a) Managing your time more efficiently

   b) Studying more effectively

   c) Taking better notes

   d) Methods to relieve stress

9. Under what conditions do tutors meet with their tutees?

   a) As often as necessary to solve problems

   b) Only before major examinations

   c) For a maximum of three hours per week

   d) On a one-to-one basis or in small groups

OASIS Orientation Questionnaire
Page Three

10. Which of the following is not a characteristic of OASIS tutors?

    a) Veterans of a formal training course

    b) Any student who can pass a qualifying exam

    c) Students who have a 3.0 or higher GPA

    d) Students who have taken the courses that they tutor

11. Which of the following is not an OASIS faculty development activity?

    a) Examining ethnic and sex influences on academic success

    b) Developing new approaches to education

    c) Evaluating courses

    d) Writing tests for lower division courses

12. Which statement is true of the Reading and Study Skills program?

    a) It deals with specific skills, such as spelling and grammar.

    b) Classes are held in each of the four colleges on a rotating basis.

    c) Students must be referred by an instructor.

    d) Groups are filled on a first-come, first-served basis.

13. What has evaluation of OASIS tutoring programs shown?

    a) That students feel better about school after being tutored

    b) Tutored students' grades are significantly higher than non-tutored students' grades.

    c) Evaluation is new for OASIS, and results thus far are inconclusive.

    d) That male tutors yield better results in science courses, and female tutors yield better results in mathematics

14. For whom is regular tutorial assistance available?

    a) Lower division math and science students

    b) All courses in 3rd College

    c) Breadth requirement courses in all four colleges

    d) All of the above

15. Which step is necessary to receive Reading and Study Skills assistance?

    a) Be referred by an instructor or counselor

    b) Apply at OASIS for assistance

    c) Have an intake interview with OASIS staff

    d) Take your choice of self-instructional or group programs

16. What should a student who needs <u>short-term</u> academic help do?

    a) Go to a clinic during open hours

    b) Make an application at OASIS for a regular tutor

    c) Take several exams and wait for his instructor to refer him to OASIS

    d) Try to proceed with the course and solve his own problems

17. Which of the following has been examined by the OASIS evaluation studies?

    a) Relationship of high school GPA to math achievement

    b) How prerequisites relate to course performance

    c) Performance in math courses as compared to physics

    d) Sex differences in drop-out rates at UCSD

18. Which of the following <u>is</u> a true statement?

    a) Non-clinic tutorial assistance is available to any student at any time during the quarter.

    b) Tutors are assigned two weeks before the quarter begins.

    c) Tutors are assigned on a first-come, first-served basis.

    d) Students must be referred by an instructor in order to receive a tutor.

	Strongly Agree	Agree	Disagree	Strongly Disagree
19. The individual parts of the slide-tape presentation were clearly related to each other.	____	____	____	____
Comment?				
20. After viewing the slide program, I have enough information to clearly understand the OASIS program.	____	____	____	____
Comment?				
21. The voice on the tape was clear and understandable.	____	____	____	____
Comment?				
22. The level of the program was correct for the audience (not too simple, not too difficult).	____	____	____	____
Comment?				
23. It was clear what the slides represented.	____	____	____	____
Comment?				
24. The presentation held my interest throughout.	____	____	____	____
Comment?				

25. Were there any sections of the program that were unclear?	Yes	____	No	____
If yes, which ones?				

26. Do you have any other comments for improving the quality of this slide-tape presentation?

Appendix XII

Summary of Responses to OASIS Orientation Program Questionnaire: Content Section

Topical Area of Question	Percentage Correct
PTFP Tutorial Program	82%
Clinic Tutorial Programs	95%
Reading and Study Skills Program	82%
Research and Evaluation Program	90%
Visually Limited Program	79%

Note: N = 17

Appendix XIII

Summary of Responses to OASIS Orientation Program Questionnaire: Formative Section

	Strongly Agree	Agree	Disagree	Strongly Disagree
The individual parts of the slide-tape presentation were clearly related to each other.	9	8	0	0
After viewing the slide program, I have enough information to clearly understand the OASIS program.	8	9	0	0
The voice on the tape was clear and understandable.	13	3	1	0
The level of the program was correct for the audience (not too simple, not too difficult).	10	6	1	0
It was clear what the slides represented.	8	9	0	0
The presentation held my interest throughout.	8	8	1	0
Were there any sections of the program that were unclear?	Yes	1	No	16

Appendix XIV

OASIS ORIENTATION PROGRAM

QUESTIONNAIRE II*

1. Does the program provide enough information to enable a student to determine which services are offered by OASIS?

   Definitely___ Probably___ Probably not___ Definitely not___

2. Does it provide enough information to tell a student how to apply for tutorial assistance?

   Definitely___ Probably___ Probably not___ Definitely not___

3. Does it provide enough information to tell a student how to enroll in the Reading and Study Skills program?

   Definitely___ Probably___ Probably not___ Definitley not___

4. How suitable do you think this particular program was for use in orientation?

   Very suitable___ Suitable___ Not very suitable___ Unsuitable___

5. How suitable do you think audio-visual presentations, in general, are for use in orientation?

   Very suitable___ Suitable___ Not very suitable___ Unsuitable___

6. Was the narration easily understood?

   Very easily understood ___ Easily understood___ Not easily understood___ Incomprehensible___

7. Were the visuals easily understood?

   Very easily understood___ Easily understood___ Not easily understood___Incomprehensible___

8. How many visuals did <u>not</u> seem to be congruent with the audio?

   None___ A few___ Many___ Very many___

9. How valuable do you think this program was for the participants in your orientation?

   Very valuable___ Valuable___ Not very valuable___ Useless___

* Developed by the Office of Academic Support and Instructional Services, May, 1976.

10. If you had to choose between this program and an OASIS staff member to provide information about OASIS, which would you choose. Why?

_____

_____

_____

11. Please describe any portions of this program which need to be changed and how you would change them.

_____

_____

_____

_____

Appendix XV

A Tabulation of Responses from the College Orientation Leaders to the OASIS Orientation Program Questionnaire

1. Does the program provide enough information to enable a student to determine which services are offered by OASIS?

   Definitely 4 Probably 0 Probably not 1 Definitely not 0

2. Does it provide enough information to tell a student how to apply for tutorial assistance?

   Definitely 4 Probably 1 Probably not 0 Definitely not 0

3. Does it provide enough information to tell a student how to enroll in the Reading and Study Skills program?

   Definitely 3 Probably 2 Probably not 0 Definitely not 0

4. How suitable do you think this particular program was for use in orientation?

   Very suitable 3 Suitable 2 Not very suitable 0 Unsuitable 0

5. How suitable do you think audio-visual presentations, in general, are for use in orientation?

   Very suitable 3 Suitable 2 Not very suitable 0 Unsuitable 0

6. Was the narration easily understood?

   Very easily understood 4 Easily understood 1 Not easily understood 0 Incomprehensible 0

7. Were the visuals easily understood?

   Very easily understood 2 Easily understood 3 Not easily understood 0 Incomprehensible 0

8. How many visuals did not seem to be congruent with the audio?

   None 3 A few 2 Many 0 Very many 0

9. How valuable do you think this program was for the participants in your orientation?

   Very valuable 4 Valuable 1 Not very valuable 0 Useless 0

10. If you had to choose between this program and an OASIS staff member to provide information about OASIS, which would you choose. Why?

Response	Frequency
Program preferred	4
Program is adequate	1
People are necessary to answer questions	1

11. Please describe any portions of this program which need to be changed and how you would change them.

Response	Frequency
More information should be included on numbers of students served	1
Statistical data showing success should be included	1
Should be updated periodically	1
Need more women and faces of color, especially in teaching roles	1
Need to explore biases about tutoring	1

Appendix XVI

Progress on Instructional Materials Development Projects

Project	Goals Specification	Objectives Specification	Review of Objectives	Modification of Objectives	Preliminary Versions of Materials	Review of Preliminary Materials	Modification Based on Review	Small Scale Field Tryout	Modification of Materials	Large Scale Field Test	Final Modification	Finished Product
Orientation Program	*	*	*	*	*	*	*	*	*	*	*	*
Visually Limited Project	*	*	*	*	*	*						
TEP 196 Course Modules	*	*	*	*	*							
Science and Technology 11A	*	*	*	*	*							
Note-Taking Project	*											

Note: This table reflects progress as of June 30, 1976.